Space Weather Forecast

Issued on Tuesday, 11 June 2024 at 12:17 Local

This forecast provides a four day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales

---

We are aware of a possible disruption to data flow from the Space Weather Prediction Centre on Tuesday the 11th June (1500-2100UTC). As a result, our Alerts and Warnings service may experience delays or contain incomplete data.

Space Weather Forecast Headline: Moderate-class flares (R1-R2 radio blackouts) initially likely, slight chance of Strong flares (R3 blackout), risk then declining. Chance of minor solar radiation storm (S1-S2) initially, risk declining through the period.

Analysis of Space Weather Activity over past 24 hours

Solar Activity: Solar activity is Moderate with a Moderate-flare peaking at 10/1840 UTC from a region that is over the southwestern limb. There are currently eight sunspot regions on the visible disc. The most active region continues to be the large region that has rotated off the southwest limb and is no longer clearly visible. It will continue to contribute to the flare risk for another 24 hours or so until it is well away from the southwest limb. A moderately sized sunspot in the southeast is now the largest region on the disc. It consists of a large leader spot with smaller spots around it. The remaining sunspot regions are mostly simple and stable. Some magnetic looping observed in imagery suggests a new region to rotate onto the southeast limb in the next 24 hours.

No Earth-directed CMEs have been observed in the past 24 hours.

Solar Wind / Geomagnetic Activity: Solar winds were at background levels initially, before the arrival of a CME (which left the Sun on 08 June), with speeds reaching elevated levels, peaking around 500-550 km/s. The IMF (Interplanetary Magnetic Field) was weak initially, but increased to reach Moderate or Strong levels with the arrival of the CME, and has since dropped back to weak levels. The all important north-south component was initially neutral, but became moderately negative (southward) for a time during the CME arrival. Geomagnetic activity was Quiet (Kp 1) initially, increasing to Unsettled to Active (Kp3-4) from 10/1500-11/0600 UTC due to CME influence.

Energetic Particles / Solar Radiation: Solar radiation levels have eased back below the S1/Minor radiation storm level.

Four-Day Space Weather Forecast Summary
Solar Activity: Moderate-flares are initially considered to be likely with a slight chance of further Strong flares, mainly from the region which has just rotated off the southwest limb. The risk reduces through Day 1 (11 June) as this region continues to rotate further away from the southwest limb.

Solar Wind / Geomagnetic Activity: Lingering effects from the CME arrival on 10 Jun (which left the Sun on 08 June) are possible through Day 1 (11 Jun). Solar winds have recently decreased from elevated levels, and are expected to ease further to background through Day 1.

Issued by Met Office Space Weather Advisor, Tel: +44 (0) 330 135 4254 Email: moswoc@metoffice.gov.uk

© Crown Copyright 2024. All Rights Reserved.

A further slight enhancement in solar winds is possible from a small coronal hole in south centre disc later on Day 3 or early Day 4 (13-14 June), but any geomagnetic response is expected to be limited,

Geomagnetic activity is likely to be Quiet to Unsettled (Kp1-3) at first, with a chance for Active (Kp4) intervals early on Day 1 due to any lingering influence of the 10 Jun CME arrival. Mostly Quiet conditions are likely from Day 2 (12 Jun) onward, with a slight chance of Unsettled to Active intervals later on Day 3 and Day 4 (13-14 Jun) due to any weak high speed stream influence.

Energetic Particles / Solar Radiation: Solar radiation is now below S1/Minor radiation storm levels after the recent S3/Strong enhancement. A reducing risk of further S1 or S2 radiation storms as the complex sunspot continues to rotate further away from the southwest limb in the next 24 hours.

Issued by Met Office Space Weather Advisor, Tel: +44 (0) 330 135 4254 Email: moswoc@metoffice.gov.uk

© Crown Copyright 2024. All Rights Reserved.

Met Office Space Weather Forecast

Geomagnetic Storms:

Geo-Magnetic Storm Probability (Exceedance)	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Minor or Moderate	G1 to G2	No	10	1	1	1
Strong	G3	No	1	1	1	1
Severe	G4	No	1	1	1	1
Extreme	G5	No	1	1	1	1

Radio Blackouts - X Ray Flares:

X Ray Flares Probability	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	R1-R2 M Class	Yes	60	40	30	30
Very Active	R3 to R5 X	No	15	5	1	1

Solar Radiation Storms - (High Energy Protons):

Radiation Storms Probability (Exceedance)	Level (cm^{-2} sr^{-1} s^{-1})	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	≥ S1	No	50	20	5	1
Very Active	≥ S3 *	No	10	5	1	1

* S3 ≥ 10 MeV ≥ 1000 pfu and / or ≥ 50 MeV ≥ 10 pfu. (pfu = $cm^{-2}sr^{-1}s^{-1}$)

Issued by Met Office Space Weather Advisor, Tel: +44 (0) 330 135 4254 Email: moswoc@metoffice.gov.uk

© Crown Copyright 2024. All Rights Reserved.